

General

Title

End stage renal disease (ESRD): risk-adjusted standardized mortality ratio for dialysis facility patients.

Source(s)

Phase III ESRD clinical performance measures in effect April 1, 2008. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2008 Apr 1. 4 p.

Quality Measurement and Health Assessment Group (QMHAG). Measure information form: facility patient survival classification (based on SMR). Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2008 Apr 1. 16 p.

Measure Domain

Primary Measure Domain

Outcome

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the risk-adjusted standardized mortality ratio for dialysis facility patients.

Rationale

Epidemiological Relevance

At the end of 2004 there were 335,963 patients being dialyzed, of which 104,364 were new (incident) end

stage renal disease (ESRD) patients. Currently, the ESRD mortality rate is 7-8 times the Medicare population. ESRD mortality in the US was 33% higher than in Europe, so this outcome is important to patients. The components of unexplained or unexpected mortality that are actionable and associated with treatment and overall management of ESRD and other conditions are important to identify.

Financial Relevance

Patient health care for ESRD patients carries high costs associated with mortality. Inefficient and inappropriate management of all aspects of patient ESRD care carries a high cost for both providers and payers. In 2004, total Medicare costs for the ESRD program were \$20 billion (a 12% increase from 2003), while non-Medicare costs were \$12.4 billion (a 14% increase from 2003).

Policy Relevance

This measure has been in use in the Dialysis Facility Reports (formerly Unit-Specific Reports) since 1995 and on the Dialysis Facility Compare (DFC) web site (www.medicare.gov) since 2001, when the Balanced Budget Act (1997) required a system to measure and report the quality of dialysis services under Medicare.

The Dialysis Facility Reports are used by the dialysis facilities and ESRD Networks for quality improvement, and by ESRD state surveyors for monitoring and surveillance. The standardized mortality ratio (SMR) in particular is used by ESRD state surveyors in conjunction with other standard criteria for prioritizing and selecting facilities to survey. This patient survival classification measure is reported publicly on the DFC web site to assist patients in selecting dialysis facilities.

Primary Clinical Component

End stage renal disease (ESRD); dialysis

Denominator Description

Number of deaths that would be expected among eligible patients at the facility during the four-year time period, given the patient mix at the facility (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

Numerator Description

Number of deaths among eligible patients at the facility during the 4-year time period

Note: Refer to the original measure documentation for administrative codes.

Evidence Supporting the Measure

Evidence Supporting the Criterion of Quality

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

Need for the Measure

Use of this measure to improve performance

Evidence Supporting Need for the Measure

Quality Measurement and Health Assessment Group (QMHAG). Measure information form: facility patient survival classification (based on SMR). Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2008 Apr 1. 16 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

External oversight/Medicare

Internal quality improvement

National reporting

Application of Measure in its Current Use

Care Setting

Ambulatory Care

Professionals Responsible for Health Care

Physicians

Lowest Level of Health Care Delivery Addressed

Single Health Care Delivery Organizations

Target Population Age

Unspecified

Target Population Gender

Either male or female

Stratification by Vulnerable Populations

Unspecified

Characteristics of the Primary Clinical Component

Incidence/Prevalence

See the "Rationale" field.

Association with Vulnerable Populations

Unspecified

Burden of Illness

See the "Rationale" field.

Utilization

Unspecified

Costs

See the "Rationale" field.

Institute of Medicine (IOM) Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding

Users of care only

Description of Case Finding

Number of deaths that would be expected among eligible patients at the facility during the four-year time period, given the patient mix at the facility

Denominator Sampling Frame

Patients associated with provider

Denominator Inclusions/Exclusions

Inclusions

Number of deaths that would be expected among eligible patients at the facility during the four-year time period, given the patient mix at the facility

All dialysis patients who have reached day 90 of end stage renal disease (ESRD)

Note: Refer to the original measure documentation for additional details.

Exclusions

Deaths from street drugs or accidents unrelated to treatment are excluded from the calculation (corresponding time at risk is not excluded).

Relationship of Denominator to Numerator

All cases in the denominator are equally eligible to appear in the numerator

Denominator (Index) Event

Clinical Condition

Therapeutic Intervention

Denominator Time Window

Time window brackets index event

Numerator Inclusions/Exclusions

Inclusions

Number of deaths among eligible patients at the facility during the 4-year time period

Note: Refer to the original measure documentation for administrative codes.

Exclusions

Unspecified

Measure Results Under Control of Health Care Professionals, Organizations and/or Policymakers

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

Numerator Time Window

Fixed time period

Data Source

Administrative data

Level of Determination of Quality

Not Individual Case

Outcome Type

Clinical Outcome

Pre-existing Instrument Used

Unspecified

Computation of the Measure

Scoring

Rate

Interpretation of Score

Better quality is associated with a lower score

Allowance for Patient Factors

Unspecified

Standard of Comparison

External comparison at a point in time

Internal time comparison

Evaluation of Measure Properties

Extent of Measure Testing

In 1999, the Centers for Medicare & Medicaid Services (CMS) funded the development of dialysis facility-specific measures that could be released in reports to the public for their use in making dialysis treatment choices. An extensive public process was used to select the first set of measures to be publicly reported.

In addition, several additional technical meetings have also been held to discuss the technical specifications, reliability and validity of this measure. National Institutes of Health (NIH) and CMS held the Standardized Mortality Ratio Technical Meeting on July 28, 2003 in Bethesda, MD. On September 27,

2004 and February 8, 2006, RTI International (RTI International is a trade name of Research Triangle Institute), under contract to the CMS, held technical expert panel meetings to review the patient survival quality measure. On September 18-19 2006, a technical expert panel was convened by Arbor Research Collaborative for Health, contractor to CMS, to review and update this measure.

Reliability

Data are derived from an extensive national end stage renal disease (ESRD) patient database, which is largely derived from the CMS Program Medical Management and Information System (PMMIS/REMIS), the Standards Information Management System (SIMS) database maintained by the 18 ESRD Networks, the CMS Annual Facility Survey (Form CMS-2744), Medicare dialysis and hospital payment records, the CMS Medical Evidence Form (Form CMS-2728), transplant data from the Organ Procurement and Transplant Network (OPTN), the Death Notification Form (Form CMS-2746), the Nursing Home Minimum Dataset, and the Social Security Death Master File. The database is comprehensive for Medicare patients. Non-Medicare patients are included in all sources except for the Medicare payment records. SIMS provides tracking by dialysis provider and treatment modality for non-Medicare patients. SIMS and billing data have high agreement (94%) about patient placement. Information on death is obtained from several sources which include the CMS ESRD Program Medical Management Information System, the Death Notification Form (CMS Form 2746), and the Social Security Death Master File. The Social Security Death Master File (SSDMF) is used to supplement death information (about 1% of deaths). Method of combining SSDMF with other sources of death data has been validated for transplant recipients.

Evidence for Reliability/Validity Testing

Dickinson DM, Dykstra DM, Levine GN, Li S, Welch JC, Webb RL. Transplant data: sources, collection and research considerations, 2004. Am J Transplant. 2005 Apr;5(4 Pt 2):850-61. [PubMed](#)

Frederick PR, Maxey NL, Clauser SB, Sugarman JR. Developing dialysis facility-specific performance measures for public reporting. Health Care Financ Rev. 2002 Summer;23(4):37-50. [PubMed](#)

Hulbert-Shearon TE, Wolfe RA, Held PJ. False positives (FP) and false negatives (FN) in measurement of standardized mortality ratio (SMR) [abstract]. J Am Soc Nephrol. 1997;8:194A.

Identifying Information

Original Title

Facility patient survival classification (based on SMR).

Measure Collection Name

Dialysis Facility Compare (DFC) Measures

Measure Set Name

Patient Survival, Facility Level

Submitter

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

Developer

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

Funding Source(s)

Centers for Medicare & Medicaid Services (CMS)

Composition of the Group that Developed the Measure

This measure was developed by University of Michigan's Kidney Epidemiology and Cost Center in collaboration with PRO West for Centers for Medicare & Medicaid Services (CMS).

Financial Disclosures/Other Potential Conflicts of Interest

Arbor Research Collaborative for Health organizational disclosure information:

The Dialysis Outcomes and Practice Patterns Study (DOPPS) is administered by Arbor Research Collaborative for Health and is supported by scientific research grants from Amgen (since 1996), Kyowa Hakko Kirin (since 1999, in Japan), Genzyme (since 2009), and Abbott (since 2009), without restrictions on publications. (Grants/research support)

The Scientific Registry of Transplant Recipients (SRTR) is funded by contract number 234-2005-37009C from the Health Resources and Services Administration, US Department of Health and Human Services.

Arbor Research Collaborative for Health individual disclosure information:

Ronald L. Pisoni, PhD, has received speaker fees from Amgen, Kyowa Hakko Kirin, and Vifor, has served as a consultant for Pursuit Vascular, and has served on an advisory panel for Merck.

Friedrich K. Port, MD, has been a Scientific Advisor for the Nephrology Advisory Board.

Sylvia Paz B. Ramirez, MD, has nothing additional to disclose.

Bruce M. Robinson, MD, MSCE, has received speaker fees from Kyowa Hakko Kirin.

Francesca Tentori, MD, has nothing additional to disclose.

Robert A. Wolfe, PhD, has nothing additional to disclose.

University of Michigan's Kidney Epidemiology and Cost Center individual disclosure information:

John Kalbfleisch, PhD, has nothing to disclose.

J. M. Messina, MD, has nothing to disclose.

Rajiv Saran, MD, is funded as a DOPPS investigator on a subcontract with Arbor Research Collaborative for Health; receives research funding from the Renal Research Institute, a not-for-profit organization funded by Fresenius; has served as a Scientific Advisor for Amgen and has received honoraria for the same; and serves as PI on a Centers for Disease Control-CKD surveillance system project, as well as a co-investigator with projects funded by the CMS.

Endorser

National Quality Forum - None

Included in

Dialysis Facility Compare

Adaptation

Measure was not adapted from another source.

Release Date

2008 Apr

Measure Status

This is the current release of the measure.

Source(s)

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Measure Availability

The individual measure, "Facility Patient Survival Classification (Based on SMR)," is published in "Measure Information Form: Facility Patient Survival Classification (Based on SMR)." This document is available in Portable Document Format (PDF) from the [Arbor Research Collaborative for Health Web Site](#)

NQMC Status

This NQMC summary was completed by ECRI Institute on May 5, 2010. The information was verified by the measure developer on June 14, 2010.

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